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Product Information

Supel-Tips C18 Micropipette Tips

Product code: TPSC18
Store at Room Temperature

Product Description

Supel-Tips C18 Micropipette Tips are designed to extract, concentrate, and/or purify macromolecules (proteins, peptides, and other biological molecules) through hydrophobic interactions. These 10 µL pipette tips contain a sorbent bed bonded at the working end of the tip, using a high-purity adhesive. The bed acts as a solid phase extraction medium to adsorb molecules of interest from the sample matrix. Subsequently, the concentrated, desalted analytes are eluted for downstream analysis. Supel-Tips C18 Micropipette Tips can be used for sample preparation/ clean-up prior to analysis using ESI-MS, MALDI-TOF-MS and other mass spectrometric/chromatographic methods.

This product has been developed to provide fast and effective analyte retention/elution for peptides and proteins. Supel-Tips C18 Micropipette Tips have the following features:

- 10 µL polypropylene micropipette tips
- C18 bonded spherical silica-based adsorbent, endcapped
- Sorbent particle size of 50-60 µm
- Sorbent pore size of 200 Å

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

Store the micropipette tips at room temperature.

Procedure

A typical sample preparation procedure for MALDI-TOF mass spectrometry is presented. The volumes and conditions are suggestions; further optimization may be required depending on the specific application.

Note: When ESI-MS is employed for subsequent analysis, it is recommended to replace 0.1% trifluoroacetic acid (TFA) with 0.1% formic acid or acetic acid during elution.

1. Firmly attach a Supel-Tips C18 Micropipette Tip to a 10 µL pipette.
2. To displace the air trapped in the sorbent bed, moisten with 10 µL of 0.1% TFA in 70% acetonitrile (ACN) solution.
3. To remove residual wetting solution, wash twice with 10 µL of 0.1% TFA in ultrapure water.
4. To bind the sample solution, perform a series of aspirate and dispense cycles (draw in 10 times and dispense 10 times).
5. To remove salts and detergents from the bound sample, wash the sorbent bed twice with 10 µL of 0.1% TFA in ultrapure water.
6. Elution may be accomplished using one of two general approaches:

   a. For MALDI-TOF-MS, the bound samples may be eluted using 0.1% TFA in 70% ACN solution. Alternatively, elution may be performed directly onto the MALDI-MS target with a single 1.5 µL aliquot of matrix solution in 0.1% TFA/70% ACN solution.

      Note: Depending on the specific MALDI-MS target, the elution volume can be greater or less than 1.5 µL).

   b. Alternatively, for more complex samples, protein/peptide samples can be fractionated using a range of elution solutions of increasing organic content. Fractionation is based on the varying hydrophobicity of the protein or peptide sample components. The exact composition and number of elution solutions will vary depending on the nature of the bound sample.

      Possible examples of fractionation using a range of elution solutions of increasing organic content include: Solutions of 0.1% TFA in variable concentrations of ACN (10%, 30%, 50%, 70%, and 90% ACN) or Solutions of MALDI matrix with variable ACN concentrations may be used.

Results

The recovery and binding capacity for three representative macromolecules are shown in Table 1.

Table 1. Peptide Recovery and Binding Capacity

Peptide	(M+H)+ Monoisotopic	Recovery by HPLC (%)	Binding Capacity (µg)
Insulin, Chain B, Oxidized	3494.65	89	17
Amyloid	1446.75	100	18
Bradykinin, Fragment 1-7	757.40	79	7.6

References

1. Liebler, D.C., Introduction to Proteomics: Tools for the New Biology, Humana Press, Inc., (Totowa, NJ: 2002). (Product Code P0741).
2. Simpson, R.J., Proteins and Proteomics: A Laboratory Manual, Cold Spring Harbor Laboratory Press, (Cold Spring Harbor, NY: 2002). (Product Code Z700428).
3. Westermeier, R., and Naven, T., Proteomics in Practice: A Laboratory Manual of Proteome Analysis, Wiley-VCH, (Wienheim, FRG: 2002). (Product Code P5618).
4. Simpson, R., Purifying Proteins for Proteomics: A Laboratory Manual, Cold Spring Harbor Laboratory Press, (Cold Spring Harbor, NY: 2004). (Product Code Z701793).
5. Siuzdak, G., Mass Spectrometry for Biotechnology, Academic Press, (San Diego, CA: 1996). (Product Code Z371920).
6. Cunico, R.L. et al., Basic HPLC and CE of Biomolecules, Bay Bioanalytical Laboratory, (Richmond, CA: 1998).

Chemical Compatibility

Supel-Tips C18 Micropipette Tips are compatible with most organic solvents, buffers, and alkaline solutions. Concentrated strong inorganic acids such as hydrochloric and nitric acid should be avoided (see Table 2).

Table 2. Supel-Tips C18 Micropipette Tip Compatibilities

Solvent/chemical	Compatible (yes/no)
Acetic acid	yes
Acetone	yes
Acetonitrile	yes
Ammonium hydroxide (28%)	yes
Benzene	yes
Benzyl alcohol	yes
1-Butanol	yes
Carbon tetrachloride	yes
Chloroform	yes
Dichloromethane	yes
Diethanolamine	yes
N,N-Dimethylformamide	yes
Ethanol (200 proof)	yes
Formic acid (96%)	yes
Guanidine HCl (6 M)	yes
Hydrochloric acid (concentrated - 37%)	no
Hydrochloric acid (1%)	yes
Isopropyl alcohol	yes
2-Mercaptoethanol	yes
Methanol	yes
Methyl ethyl ketone	yes
Nitric acid (1%)	yes
Nitric acid (concentrated - 70%)	no
Phenol (0.5%)	yes
Phosphoric acid (concentrated - 85%)	yes
Sodium hydroxide (1 M)	yes
Sulfuric acid (1%)	yes
Tetrahydrofuran	yes
Toluene	yes
Trifluoroacetic acid (10%)	yes
Urea (6 M)	yes
o-xylene	yes